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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/071,272	02/08/2002	Greg A. Penner	11898.0021.NPUS00 (MOBS:0	9001

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EXAMINER	
HAAS, WENDY C	

ART UNIT	PAPER NUMBER
1661	

DATE MAILED: 04/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/071,272	PENNER ET AL.	
	Examiner	Art Unit	
	Wendy C. Haas	1661	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 January 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18 and 40* is/are pending in the application.

4a) Of the above claim(s) *40* is/are withdrawn from consideration.

5)☒ Claim(s) *14-18* is/are allowed.

6)☒ Claim(s) *1-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-4 and 13 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Raque (United States Patent Number 5,859,349) or Raque (United States Patent Number 5,994,621) in view of Koziel et al (United States Patent Number 6,403,865) and Williams, for reasons of record.

Raque ('349) teaches a seed mixture of 97% to 99% genetically modified food plant seed and 3% to 1% seed of a variety of the same food plant having a phenotypical difference. Raque further teaches dyeing the seed coats of the seed of the plants having a phenotypical difference to facilitate pre-planting identification of the transgenic seed mixture. (*See*, Column 2, lines 30-35.)

Raque ('349) does not teach natural seed coat color as the phenotypical difference between the seed types. Further, Raque ('349) does not teach specific genetic make-ups or seed coat colors.

Raque ('621) teaches a seed mixture of 90% to 99.999% genetically modified food plant seed and 10% to .001% seed of a variety of the same food plant having a phenotypical difference. Raque also teaches dyeing the seed coats of the seed of the plant having a

phenotypical difference to facilitate pre-planting identification of the transgenic seed mixture. (*See,* Column 2, lines 45-50.)

Raque ('621) does not teach natural seed coat color as the phenotypical difference between seed types. Further, Raque ('621) does not teach specific genetic make-ups or seed coat colors.

Koziel et al. teach the use of seed pigmentation to identify transformed transgenic seeds. Specifically, Koziel et al. altered the phenotype of anthocyanin in natural seed coat color to produce a transformed maize line with pigmented seeds in order to identify the transformed seeds of interest by color. This phenotypical color transformation could be linked with other desirable transgenic traits (*i.e.*two or more genetically modified traits), such as the expression of insecticidal activity in the plant. (*See,* Column 12, lines 19-62.)

Koziel et al. do not teach a specific seed mixture or specific genetic make-ups or seed coat colors.

Williams teaches different seed coat colors and the genetic make-up of those colors in soybeans.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the teachings of Raque ('349) or Raque ('621) in combination with the teachings of Koziel et al. and Williams to produce a transgenic seed mixture that is identifiable by given percentages of seed coat coloration.

One would be motivated to do this for several reasons. Raque ('349) and Raque ('621) note that dyeing seed coats of phenotypically different seeds is advantageous because it leads to easy pre-planting identification of the transgenic seed mixture. Koziel et al. provide similar

motivation to alter the natural phenotype of seed coat color, providing that altered natural seed coat color provides an easy means to identify seeds of interest through rapid visual identification, which in turn results in reduced costs and time in identification of seeds containing particular desirable traits. Finally, Williams provides seed coat color make-ups in soybean, noting which varieties are homozygous and heterozygous, and further teaching that seed coat color differences occur in soybean naturally (*i.e.,* without the time-consuming further steps of dyeing the seed coat or genetically engineering differences in seed coat color pigmentation.)

A person of ordinary skill in the art would have an expectation of success in using a seed mixture of differing phenotypes to identify seeds of interest, as Raque ('349) and Raque ('621) have successfully used seed of differing coloration to identify seed mixtures of interest, and as Koziel et al. has used natural seed coat pigmentation to identify transgenic seeds of interest.

As such, the invention as a whole was *prima facie* obvious to a person of ordinary skill in the art at the time the invention was made.

Claims 5 through 12 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Raque (United States Patent Number 5,859,349) or Raque (United States Patent Number 5,994,621) in view of Koziel et al (United States Patent Number 6,403,865) and Williams, as applied to Claims 1 through 4, above and further in view of Wright et al (United States Patent Number 5,991,025), for reasons of record.

The teachings of Raque ('349), Raque ('621), Koziel et al. and Williams are set forth above.

Raque ('349), Raque ('621), Koziel et al. and Williams do not teach determining seed coat color by measuring total light reflectance, such as by NIR spectophotometry.

Wright et al. teach that the use of NIR spectophotometry to analyze constituents of grains, including cell wall content, are known in the art. (*See,* Column 1, lines 25-35.) Seed coat coloration is predicated on the content of carotenoid and other pigments in cell walls.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use, as suggested by the teachings of Wright et al., NIR technology to determine differences in seed coat color for any mixed group of seeds of interest to be segregated by seed coat color; all seed coat colors recited in claims 6 through 12 are known in the art (*See, e.g.,* Williams.)

One would be motivated to do this for several reasons. As taught by Wright et al., NIR technology can be integrated into mechanical farm equipment to measure the constituents of a sample. In addition, NIR technology is capable of detecting sophisticated low-level differences in seed coat color for mixed seed samples that do not vary much in pigmentation to the naked eye.

A person of ordinary skill in the art would have an expectation of success in using NIR spectophotometry to determine seed coat color because it was a preferred method in the art for analyzing grain constituents at the time of invention.

As such, the invention as a whole was *prima facie* obvious to a person of ordinary skill in the art at the time the invention was made.

Response to Applicants' Arguments

(1) Applicant argues on page 7 of the Remarks that "the cited references do not suggest using natural differences in seed color to identify transgenic seeds." The Examiner has considered this argument, but does not find it to be persuasive. Koziel et al. introduce genes into the corn plants that alter the *natural* phenotypic color expression of the seed. The seed is not dyed or injected with color, but instead grows with this altered coloration and Koziel et al. indicate that the color variation is transmissible.

(2) Applicant argues that there is no motivation in Raque and Koziel is to make the seed stand out from normal seed color rather than use natural differences to identify transgenic seed. As stated above, Koziel is inducing the transgenic seed to produce a natural color difference to make it stand out. Further, the claimed invention (see, e.g. Claim 1) seeks "natural seed coat color differences" in the mixture "for identifying seed with a genetically modified trait using a phenotypic marker of seed coat color". The Examiner fails to see how this argument is persuasive, as Koziel teaches natural differences and the claims seek to identify transgenic seed and provides motivation in the paragraphs cited in the rejection set forth above.

(3) Applicant argues that Koziel would not be useful because farmers could pick out the differently colored seed before planting to avoid detection. This argument has been considered but is not found to be persuasive as the Examiner fails to see how this argument could not be applied to claim 1 of the instant application as well.

Allowable Subject Matter

As indicated in the previous Office Action, claims 14 through 18 are allowed.

References Cited

The references cited in the rejections of record have previously been made of record in the case.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Future Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wendy C. Haas whose telephone number is (571) 272-0976. The examiner can normally be reached on Monday through Friday from 9:00 to 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anne Marie Grunberg can be reached on (571) 272-0975. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

W. C. Haas

WENDY HAAS
PATENT EXAMINER